Avalanche 2.16 Release

These Release Notes are for Avalanche version 2.16 (previously called 7.80) software. This document contains the latest technical information that is not included in the product's user documentation. Please read this document carefully.

This document contains the following sections:

Section	Description
Contents of Release	Lists the software and documentation included in Avalanche version 2.16.
Supported Hardware and Software	Lists the hardware, applications, operating systems, and third-party software supported by Avalanche version 2.16.
New Features	Lists the new features in Avalanche version 2.16.
Bug Fixes	Lists the bug fixes in Avalanche version 2.16.
Behavior Differences	Lists any behavior differences between the last release and Avalanche version 2.16.
Limitations	Lists the limitations of Avalanche version 2.16.
Known Problems	Lists any known problems in Avalanche version 2.16 (work-arounds and severity levels are also provided, as applicable).
Additional Information	Indicates other important information that you need to know to operate Avalanche version 2.16.
End of Life Product Support	Explains Spirent's End of Life process and lists products supported by Avalanche that are in "Final Release" or "Discontinued" status.
Installation Instructions	Information on how to install Avalanche version 2.16.
Contacting Spirent Communications	Information on how to contact Spirent Communications for technical support.

Contents of Release

This release of Avalanche version 2.16 includes the following software and documentation. The Avalanche/Reflector documentation is located in your Commander installation Documentation directory (for example, `C:\Program Files\Spirent Communications\Spirent TestCenter 2.16\Layer 4-7 Application\docs`). The Scripting API for Spirent Avalanche Reference Manual is located in your Tcl scripting API installation Documentation directory (for example, `C:\Program Files\Spirent Communications\Spirent TestCenter 4-7 Application\TclAPI\Documentation`).

For information on the hardware and software that Avalanche version 2.16 supports, see "*Supported Hardware and Software*."

Software	Version
Avalanche	216.00.5054
Avalanche Analyzer Software	216.00.5054

Documentation
Avalanche Commander Online Help
Avalanche Analyzer Online Help
Avalanche URL Trace Tool Online Help
Scripting API for the Layer 4-7Application
Avalanche Installation Guide
Reflector Installation Guide
Spirent TestCenter Layer 4-7 Quick Start Guide

Supported Hardware and Software

Avalanche version 2.16 supports the following appliance hardware, SmartBits software, SmartBits hardware, operating systems, and third-party software:

Appliance Hardware
Avalanche 2500, 2700
Reflector 2500, 2700

Operating System
Windows 2000 - Professional Edition Service Pack 4
Windows XP Service Pack 1, 1a, 2

Third-party Software	Version
Microsoft Excel™ (recommended but not required)	2000 2007
Adobe Acrobat™ Reader (required to view PDF documentation)	7.0
Active Tcl/Tk (required for Tcl API only)	8.4.13
Microsoft Internet Explorer (required to view the Online Help)	5.0 or 6.0
SST TracePlus/Web Detective (Spirent Edition) - (optional)	2.86+
ClearSight Analyzer – (optional)	6.0

New Features

The Layer 4-7 Base Package on Spirent TestCenter enables service and network equipment manufacturers to stress test end-to-end networks with realistic stateful traffic. This release incorporates multiple enhancements extending the test capabilities beyond Clients and Servers to true Triple Play environments. With P2.16, users are able to create complex tests combining Voice, Video and Data providing insight from the end user as services compete for bandwidth and help determine their impact on one another.

New features and enhancements include:

- **Multi-user support** – A single module can now be used simultaneously by multiple users.
- **On the Fly Load Control** – As tests are running, the load generated can be adjusted so tests can be modified as they run so the impact can be observed in real-time.
- **Triple Play** – Voice, Video and Data are critical in deploying new services. Understanding their impact can be now be characterized in greater detail.
    - **Multicast Improvements**
        - Network Metrics: MDI
        - Per Host Multicast Statistics
        - MLDv2 for IPv6-based 3Play
    - **VoIP Improvements**
        - SIP Proxy
        - SIP CODECS
        - SIP Registration
        - Voice Quality Score (MOS)
    - **Infrastructure Improvements:**
        - VLAN Stacking
        - VLAN Configuration on Action List
    - DHCP-PD Client
    - DHCP Client and Server
    - DHCP Action List

- **FTP Enhancements** – As the number of "road warriors" increase, their impact of file transfers becomes a greater concern on the overall impact to bandwidth. Enhancements to FTP base package allows for additional realism.
    - Active FTP
    - Real Content on Reflector
    - FTP PUT

Alpha Features

Although some functionality or features may not make the official release, they may still be visible. These features are not officially supported and are exposed for use for customers looking to help develop new test cases for the next release. 'Alpha features' in this release, include:

• Server Profile Types – CapRepEth, DHCP, SIPProxyUDP

• CIFS

• NAC

• RADIUS

• Sans Top Twenty Attacks For Avalanche

Bug Fixes

Avalanche version 2.16 contains the following bug fixes:

PD #	Description
102584101	Unable to download very large file via HTTP GET - 2Gb
102863701	Copy Down on Subnet Tab does not update "Network" column
105292440	'Time to TCP SYN/ACK"Round Trip Time' 'Time to first byte' stats always reports 0
106270215	smtp doc example results in parse error
109671789	Avalanche statistics do not match what is seen in pcap (incoming/outgoing kbps)
92171864	Connection timeout on the server side not working
112284402	Client Side only GUI2TCL throws a Java exception

PD #	Description
111561258	Content file issues with additional characters and SpiVar processing
116986582	Network Response vs. Load graph is empty when displayed in Analyzer
119484633	Use of Search command with gzip file and HTTPS fails
121793744	DNS response time misreported in csv vs pcap
98877628	IPSec encrypted/decrypted octets in real time csv headers are incorrect
99839161	Subnet gateway address always reverts to .1 after user has changed original IP address/range
97747318	SNMP results button grayed out
87151841	Conversion from Std test to Adv. overwrites Telnet Profile of an earlier conversion
83399661	Merge.err file generated under results directory after running TclAPI scripts has misleading error messages
110528732	Changes to timestamps set on results tab and result csv files
121608448	GUI2Tcl modifies and increases the size of the wrhttpbodies file
99839161	Subnet gateway address always reverts to .1 after user has changed original IP address/range
121898258	Renaming a project folder containing a Worksuite loses the Validation Criteria list and Post Run Validation Criteria list data.
120679241	Commander has a problem with sourcing SpirentTestCenter.tcl script without .NET framework installed
122818447	When Reflector is acting as a FTP server and it accessed by a PC and an unsupported command is issued, the server sometimes crashes
100189046	If port assignment is unavailable, gui2tcl assumes a 2 cpu platform which may result in a test divide error when the platform is an appliance (4 interfaces).
110179109	CRUDP Summary stats not getting updated within client summary.csv
102939574	Hash mark following password for IPSEC on the subnet tab should represent place holders.
83958341	IPSec options beyond FQDN
93342711	Commander DNS Host file setting can become Global (across the same tests in project) if OK button is used while still in the edit field.
87151841	When converting standard and quick tests, any profiles used will be copied to the advanced test, overwriting any profile of the same name that is already there.
93427049	Event log incorrectly shows time in 12h format rather than the expected 24h format.

Behavior Differences

The behavior differences between Avalanche Release 2.16 and the previous release 7.5x:

- This release provides improved functionality for characterizing the impact of realistic traffic. Depending on the complexity of a test, the impact will result in the decrease of the highest obtainable performance. Tests should be first base lined with all ports in a back-to-back test to understand this impact.

- Release 2.16 contains changes in CPU/Port binding requiring tests to use at least 1 port per NIC to achieve maximum performance utilizing both CPUs. For 7.5x imported tests that for example used 2 ports on the same NIC the test will need to be reconfigured so that ports used span across both NICs to achieve desired performance.

- Release 2.16 will install into a new directory requiring running the new "import projects from previous release" option found in 2.16 commander under 'File' to move older release projects into 2.16. Once this has been selected browse to your previous version install directory folder and click 'import', you will be prompted with a list of tests to import.
  Please note depending on the number and size of tests this import may take some time.

- Release 2.16 now requires port reservation via the 'administration' 'appliances' menu 'user administration' tab before running tests.

Limitations

Avalanche version 2.16 contains the following limitations.

- Performance tests that are converted from previous versions to 2.16 may not run exactly as expected and could fail. Some changes in load patterns should be expected.

- In 2.xx you can not longer install multiple versions of the same build on a single PC and a new install of the same build will overwrite the previous install without prompting with an option to change the install path.
  You can still however have different versions on a single PC (i.e. you can have

both 2.15 & 2.16 installed but **not** 2.16.**1234** & 2.16.**5678)** a previously installed 7.5 will not be overwritten by 2.16.

- IPSec testing on the Avalanche requires that the MSS value be set to <= 1400 when working with certificates > 1024 bytes in size.
- The following two tables outline the supported configurations for IPSec within Avalanche. A cell marked with "✓" indicates that the feature is supported for that configuration in 2.16. An unchecked box indicates that the combination is not supported in this release.

Remote Access									
DUT	**XAuth**	**Aggressive Mode**	**Main Mode**	**Preshared Key**	**Cert**	**XAuth User**	**XAuth Group**	**v 4**	**v 6**
NetScreen	Generic	✓		✓		✓		✓	✓
Cisco	RemoteVPN	✓		✓		✓	✓	✓	
Nortel	Nortel	✓		✓		✓		✓	
Check Point	Checkpoint Hybrid		✓	✓	✓	✓		✓	

Site to Site									
DUT	**XAuth**	**Aggressive Mode**	**Main Mode**	**Preshared Key**	**Cert**	**XAuth User**	**XAuth Group**	**v 4**	**v 6**
NetScreen		✓	✓	✓	✓			✓	✓
Cisco		✓	✓	✓	✓			✓	✓
Nortel		✓	✓	✓	✓			✓	
Check Point									

- If the Event Logs level in the Run > Configure tab is set to Level 0 (Debug) or Level 1 (Info), you may see a degradation in performance because of the large number of logs being generated.
- Avalanche may drop packets when using gigabyte interfaces, causing unknown underrun and overrun errors, noticeable in the summary CSV file.
- Avalanche does not support these IPv6 layer 3 features and protocols:
  - Virtual Routing
  - Path MTU
  - Capture Replay
  - DDoS Attacks
  - Multicasting

- Avalanche does not support the following transitioning/tunneling protocols:
  - IPv6 to IPv4
  - IPv6 over IPv4
  - ISATAP
  - Teredo
- Tcl API users on the client side should always use the "http,xxxx" statistics variables to obtain total transaction numbers regardless of the protocol(s) used in a test.
- The Avalanche Streaming Media client supports all three transport methods for RTSP (HTTP, TCP and UDP**).** Reflector's Streaming Media server, which implements RTSP/RTP, only supports UDP as the transport method for RTP.
- VLAN tags are not displayed in PCAP files generated on appliances.
- Deleting a subnet profile in an advanced test project will remove it from all tests in the project.
- Once a database cursor name has been created in an Action List, use of the same name with a new cursor (even if the type of cursor is different) is ignored, and no warning or error message is provided.
- Content files in the POP3 server profile are always formatted as text, regardless of the type of content file uploaded.
- Avalanche and Reflector appliances are configured to auto-negotiate link parameters with attached network equipment according to 802.3 IEEE specifications. There is no provision in Avalanche or Reflector to explicitly set link parameters for link speed, duplex capability, or flow control settings. It is a requirement that network equipment connected to Avalanche or Reflector units be configured to operate based on the IEEE 802.3-specified auto-negotiation link establishment procedures.
- Exporting a WorkSuite Test will only export the tests that are in the same project. Spirent recommends that you have all your tests and suites within the same project.
- Importing a WorkSuite Test will only work if the project, tests, and suites names are not changed. If any names are changed, then the WorkSuite references need to be remapped.
- WorkSuite's memory requirements are greater than regular tests because more data is stored in memory. Please plan accordingly, especially with long running tests.
- The PPPoE feature on the Server requires two changes in the GUI for tests to work correctly:

- In the Client > Subnets tab MAC must be enabled with byte1 and byte2 values set to '00'.
- In the Server > Subnets tab MAC must be disabled.

- Appliances support different performance levels for each protocol, and if limits are exceeded, they may become unstable and require a reboot. For more information, contact Spirent Technical Support.
- Performance tests that are converted from previous versions to 2.16 may not run exactly as expected and could fail. Some changes in load patterns should be expected.
- The test conversion tool does not support multiple test conversion, so you must convert one test at a time.
- When viewing `.csv` results files in Microsoft Excel 2000, you may receive the message, "File not loaded completely." This is due to the limitation in Excel 2000 where only 254 columns can be displayed. This limit issue is resolved in Excel 2007.
- Goodput statistics cannot currently be viewed in the `.csv` results files when opened with Microsoft Excel. This is due to the limitation in Excel where only 254 columns can be displayed. You can view all the `.csv` results using Avalanche Analyzer or a tool that supports `.csv` files.
- Avalanche Commander is not designed to support names with periods.
- If a Commander connection failure occurs on any of the load generators' administration ports while a test is running, the test will be aborted.
- PPP/PPPoE support on the server side is available only in demo mode. That is, it can be used to demo a client and server connected back-to-back, with no device in the middle. You enable PPP/PPPoE from the *Server* > *Subnets* tab, by checking the appropriate checkbox in the *PPP/PPPoE* pane. There is no license required to turn on this demo feature. The feature should be disabled after the demo is completed.

  The following are additional PPP/PPPoE limitations:

  - The server does not store any state related to PPP/PPPoE sessions, and expects the client to be intelligent about retransmissions, etc.
  - MAC masquerading (individual MAC address) needs to be turned on in the *Client* > *Subnet* tab, with the first and second bytes set to zero.
  - The *Magic Number* checkbox should be disabled in the *Client – PPP* tab so that there is no automatic generation of the magic number.
  - The server expects the client to provide the IP address during IPCP negotiation. (The *IP Negotiation* checkbox should be disabled in the *Client – PPP* tab.)

♦ Tests will abort and/or throw parse errors in the event log if a reserved word is used as a user defined name such as the name of a profile or the name of an assign variable within an action list. The reserved word list can be found in the table at the end of these release notes.

- If the link to a test device port goes down during a test, there will continue to be traffic allocated to the test. If there is a larger than expected number of unsuccessful transactions, check the links, and then re-run the test.
- SSL acceleration hardware limitations:
  - SSL acceleration applies only to the handshake (when the SSL acceleration hardware is present).
  - If SSL acceleration is enabled, the *Reuse Session ID* option does not provide any additional improvement.
- The *File* > *Open Recent* menu in Avalanche Analyzer may contain old entries.
- You may receive an "Out of memory" error from Avalanche Analyzer or Avalanche Commander. Analyzer may display this error when reading large result files. Commander may display this error when a test completes and statistics are merged, which can be a memory intensive process. If this occurs, adjust the memory allocation used for Analyzer or Commander as follows:
  - Create a text file in your installation directory named `Analyzer.ja` for Analyzer or `Commander.ja` for Commander.
  - Edit this file to contain the following lines, which set the initial memory size to 256MB with a maximum size of 512MB:

    ```
    %IF_EXISTS%("INIT_JAVA_HEAP","@INIT_JAVA_HEAP@256m")
    %IF_EXISTS%("MAX_JAVA_HEAP", "@MAX_JAVA_HEAP@512m")
    ```

  - Restart the Analyzer or Commander application.
- Commander's Disconnect / Reconnect feature is not available when running a WorkSuite.
- You cannot create a new WorkSuite, or sample WorkSuite, using Commander's "Demo" mode. You can, however, still run pre-existing WorkSuites.
- When using Internet Explorer to view *Avalanche Commander Online Help* files on a computer running XP SP2, the navigation frame (Table of Contents, Index, etc.) is not displayed properly. In addition, an Information Bar appears at the top of the Help with the following message:

  "To help protect your security, Internet Explorer has restricted this file from showing active content that could access your computer. Click here for options..."

This message appears whenever the browser displays active content (such as a java script) that is on a local hard drive. You can perform either a temporary or a permanent workaround for this:

Temporary workaround:

Click on the Information Bar and select **Allow active content to display**.
This setting will remain in effect until the cache for this setting in your computer is cleared, at which point you will get the message again and will need to select this option again.

NOTE: If you clear your computer's cache, or if your browser is set to clear the cache either each time it closes or at regular intervals, you will have to reselect this.

Permanent workaround:

1. From the Internet Explorer menu bar, select **Tools > Internet Options**.
2. Click the **Advanced** tab.
3. Check the **Allow active content to run in files on my computer** box.
4. Check the **Allow active content from CDs to run on my computer** box.

WARNING: The permanent workaround is not recommended because lowering security levels could expose your computer to viruses and attacks over the Internet.

For more information about the Information Bar and its options, see:
http://support.microsoft.com/default.aspx?kbid=843017&product=windowsxpsp2

Known Problems

The known problems for Avalanche version 2.16 are listed below. Each item is given a severity code (1, 2, 3, 4, 5, or 6).
The meanings of the severity codes are as follows:

- Severity 1 System or Application Crash
- Severity 2 Major Functional Failure
- Severity 3 Moderate Functional Failure
- Severity 4 Minor Functional Failure
- Severity 5 Cosmetic Issue
- Severity 6 Enhancement

PD #	Description	Work-around	Severity
118013401	2.16 Commander can not connect to 7.x units so a manual upgrade via FTP of the units is required. Unit username/password = root/welcome	Manually FTP correct image (see 'selecting the correct .tgz file for your system' under 'additional information' below) to /disk/images on appliances before launching Commander 2.16 to add appliances. * 2700 units use the '-lx' tgz and sets the software version by running ./avmenu via telnet from /swat/bin select 'upgrade software' and the number corresponding to the correct release. * 2500 units boot of the highest image found in /disk/images, after FTPing the non –lx tgz file reboot the unit via telnet with the 'shutdown –f' command. If unfamiliar with this process please contact technical support.	**2**

PD #	Description	Work-around	Severity
N/A	B license keys may require an update if when attempting to run a test if the error "*Test exceeds licensed performance levels"* or event log "*license curb"* errors below expected performance limits have been hit are seen.	contact customer service to reissue you a new license key	2
132570531	2900 and 2.6 kernel .tgz showing up in install	none, these are alpha files that should not be used	4
127204531	7.x some imported tests getting 404 unsuccessful responses instead of an expected successful 200 ok	When importing a test from 7.5 any Virtual/Emulated Router entries in the ports tab need to be deleted if not used in a test. More information: Previously if we had an entry here the default behavior was to ignore unless specifically enabled through a checkbox. Now if there is an entry here, the default has changed enabling the	2
94566793	For 2700s, the link auto-negotiation is not consistent when the appliances are directly connected port-to-port (i.e. not using a switch). The test ports will randomly change between 100mbps and 1000mbps speeds between each test run.	Connect 2700 test ports through a switch, or similar network device.	2
98629042	To use GUI2TCL Commander must have all IPs for units in Admin window or conversion will fail.	Make sure ports are assigned on the associations tab before converting the test from GUI to Tcl	3

PD #	Description	Work-around	Severity
120506241	becomes unresponsive after clicking on large worksuite	The number of tests in a Worksuite should not exceed 25 tests. Related CR# 120821671. The number of tests in a Worksuite should not exceed 25 tests. Related CR# 120821671	1
120821671	While moving back and forth between tests, Commander consumes a lot of java heap memory and will sometimes run out of memory.	Between several test runs, close and reopen Commander before moving to a new test	1
120170855	"Generate Tcl Test" throws error "can't read activeUnitList"	Switch off all ant-virus software before running "Generate Tcl Test"	2
118988944	QuickTest with SIPUDP & SIPTP protocol servers turned-on aborts the test.	Reduce the size of the subnet. Each IP address in the subnet create 51 RTP listeners. Having a large range create too many listeners and the server runs out of memory.	2
120620136	"TCP Session Summary" in the summary.csv does not contain any stats.	This is not a bug. The column is in place for a future feature and is not meant to display statistics of features in release 2.16	3
116111819	PCAP Replay TCP doesn't work without data	Use manual mode Capture Replay to do this	2
109349941	Baseline Firewall Test Methodology does may work in this release	None. The Baseline Firewall Test Methodology is not supported in this release	2
119342215	The installer does not let user choose installation directory	None. For the first install of each release, the user is provided with an option for the install directory. Subsequent installations of that same release version will use that same directory location.	3
119545406	Merging of stats is slow for large tests is slow.	None	2
120383269	SIP call produces two attempted/successful transactions in the statistics.	This is as expected since the streaming stats are added to the SIP stats	2

PD #	Description	Work-around	Severity
119104741	Importing a test that has SIP files and running it causes a SIGSEGV	In pre 2.1x releases, the SIP files were encoded. They are not encoded anymore. The new, unencoded .wav files need to be included in the test. These unencoded fiels are included in this release.	1
82310338	When running a FTP test under very high loads, the Reflector may send 12-13 RST packets before closing a data connection with a FIN packet	This behavior should not have any affect on test results that are generated	4
83878941	Commander does not properly display 'VLAN' configuration information from tests that have been imported. The subnet tab will not display the VLAN options configured from a prior test.	None	3
83863244	Enabling Virtual routing on the interface prevents IPSec from sending ESP packets across tunnels.	None	3
101382722	Load Gen is not used in Trial Mode, therefore all related timing settings found on the Load Profile tab (except for test duration) are ignored.	Use global delay under run/configure if delay is required, no other workarounds for remaining timing settings.	3

PD #	Description	Work-around	Severity
93731571	Analyzer currently does not support protocol-specific Reflector summary CSV files. Specific protocols that are affected: crtcp, crudp, dns, ftp, http, mcast, pop3, rtsp, sip, smtp and telnet. Error message is :xxx_summary.csv does not appear to be a supported results file format.	None	4
90890726	Avalanche does not correctly execute the SSL Reuse Session ID option resulting in incomplete transactions. This option is located in the Client Profiles tab.	Induce a time delay between each successive URL call within the Action list. This can be achieved by entering a value for the User Think Time field located in the Client Profiles tab.	3

Additional Information

This section includes additional information that will help you in when operating Avalanche Commander version 2.16.

In General, it is good practice to back-up any existing tests prior to upgrading to a new release.

Selecting the right .tgz file for your system:

There are now two .tgz files available when upgrading the Avalanche. Failure to select the proper one for your system will cause the system to not boot!

For example:

avalanche_216_00_5054.tgz - is the current shipping version for the 2500 which runs QNX

avalanche-lx_216_00_5054.tgz - is the current shipping version for the 2700 which runs 2.4 Monte Vista Linux (lx = Linux).

WARNING: Do not use the 2900 or 2.6 kernel .tgz seen as part of the 2.16 install. These are alpha files that will not work on a 2500 or 2700.

If the incorrect .tgz file gets loaded onto the system, delete the current .tgz file from /disk/images and reboot.

Downgrading from Version 2.16

If you need to downgrade from 2.16 to a previous version, please contact Spirent Communications' Technical Support department at http://support.spirentcom.com or call 1-800-SPIRENT (1-800-774-7368).

Licensing

To install a license, select **Administration** > **Licenses** from the Avalanche Commander menu bar, and browse to find the license key file provided by Spirent Communications. To view the currently loaded license key file, select **Administration** > **License** from the menu bar.

2.16 does not require a new license key for appliance users as a 7.5 keyfile will continue to work with the exception of 'B' performance keys which should be re-generated by support.

Several licensing options are available. Please contact Spirent Communications' Technical Support department at http://support.spirentcom.com or call 1-800-SPIRENT (1-800-774-7368).

Link Negotiation Delays When Using Switches

At test start time, your test interfaces could experience a delay in establishing link negotiation with some switches that have been configured with *Spanning Tree* enabled or with *EtherChannel* for test ports set in auto/enabled mode. Spanning Tree is used to prevent loops in the network, and could add about 50 seconds of latency for the test ports to negotiate proper link. EtherChannel is used to load balance traffic on multiple links from the same device, and is used before Spanning Tree logic comes into play. EtherChannel can add about 15 seconds of latency.

Other reasons for link negotiation delays could be *trunking* or link speed negotiation. However, these are usually not a significant cause for link negotiation delays, if the test interface's speed, duplexity, media, and negotiation modes are configured correctly.

Work-Arounds

In the Avalanche commander GUI, you can configure a system-wide delay in starting tests in order to compensate for link negotiation delays that may occur with some switches. For more information, refer to "Running a Test" in *Avalanche Commander Online Help.*

Otherwise, Spanning Tree can be configured to bring up ports more quickly by issuing certain commands based on the vendor's implementation. For example, most Cisco switches have the option to enable `portfast` on the ports, which informs the switch to skip most of the Spanning Tree logic. For HP switches, the `forward-delay` command has similar functionality. For more information on these vendor-specific commands, refer to the vendor's website or user manual.

Other Issues

- The merged results value may appear to decline when two Reflectors are set up to run with different lengths of time. This declining value in the merged results file is due to one Reflector test ending before the other.
- To ensure robust communication, it is recommended that you use two different networks: one for load generation and another for communication between the SmartBits chassis and the PC.
- When the admin port's IP address is updated through the GUI, the Avalanche unit becomes inaccessible through FTP and Telnet. To avoid FTP and Telnet lockups, make sure you update the matching DNS server when you update the admin port IP address.

End of Life Product Support

Please note that 2.16 will be the final supported release for the 2500 appliance platform.

This section lists products that have entered End of Life since 7.5 and are not supported by Avalanche 2.16

220, 2200, ACT-5000

This hardware is still supported by Avalanche 7.5x but has been put into "Final Release" or "Discontinued" status as part of Spirent Communications' End of Life (EOL) program and may be used with Avalanche 7.5x until the hardware products become "Obsolete." A hardware product becomes "Obsolete" three years after the date it is "Discontinued." Obsolete hardware products are not supported in the Avalanche 7.5x user interface.

Existing support contracts are valid through the contract expiration date. New support contracts are available from Spirent Support Services for products that are in "Final

Release." Support contracts may not be renewed for hardware and software products that are "Discontinued." Spirent Support Services offers technical support designed for problems with Avalanche and for hardware products that are "Discontinued" or in "Final Release."

Enhancement requests for hardware products in "Final Release" or "Discontinued" status are no longer considered for development. Enhancement requests for Avalanche used with hardware products that are in "Discontinued" or "Final Release" status are no longer considered for new feature development. New features in current software releases may not be supported for "Final Release" or "Discontinued" products.

Bug fixes in Avalanche related to any hardware or software products in "Final Release" status are limited to those that correct non-conformance to published product specifications. No bug fixes for hardware and software products in "Discontinued" status are provided.

Additional information on the End of Life status of Spirent's hardware and software products is available at http://support.spirentcom.com.

Installation Instructions

This section indicates PC/workstation requirements and explains how to install/uninstall the software and/or firmware included in your product shipment. Follow the procedures below for complete instructions.

PC/ Workstation Requirements

The PC on which you are installing the Avalanche software should have these system requirements:

- Pentium 1.1 GHz or above
- Windows 2000 or XP Professional Edition
- Minimum of 512 MB of RAM
- SVGA 1024 x 768 resolution video or better
- Minimum of 200 MB free hard disk space
- PC with an Ethernet interface card to set up the chassis IP address
- Microsoft® Excel® 2000+ (or equivalent program) to develop and view comma separated value (.csv) test result files.

Installing/Uninstalling Avalanche Software

To install the Avalanche Commander software onto the PC run "Spirent TestCenter Layer 4-7 Application.exe"

WARNING: 2.16 Commander will not be able to connect to units still running pre 2.x software.

In order to install the latest software so 2.16 Commander can connect to the unit the unit must first be upgraded by manually FTPing the correct image *(see 'selecting the correct .tgz file for your system' under 'additional information')* to /disk/images on appliances before launching Commander 2.16 to add appliances.

* 2700 units use the '-lx' tgz and sets the software version by running ./avmenu via telnet from /swat/bin select 'upgrade software' and the number corresponding to the correct release.

* 2500 units boot of the highest image found in /disk/images, after FTPing the non –lx tgz file reboot the unit via telnet with the 'shutdown –f' command.

If unfamiliar with this process please contact technical support.

To uninstall Avalanche Commander software, follow the "Add or Remove Programs" process in the Windows operating system.

Contacting Spirent Communications

To obtain technical support for any Spirent Communications product, please contact our Support Services Department using any of the following methods:

U.S.

E-mail: support@spirent.com
Web: http://support.spirentcom.com
Toll Free: +1-800-SPIRENT (+1-800-774-7368) (U.S. and Canada)
Phone: +1 818-676-2616
Fax: +1 818-880-9154
Operating Hours: Monday through Friday, 06:00 to 18:00 Pacific Time

Europe

E-mail: support.europe@spirentcom.com
Web: http://support.spirentcom.com
Phone: +33 (0) 1 61 37 22 70

Fax: +33 (0) 1 61 37 22 51
Operating Hours: Monday through Friday, 09:00 to 18:00 Paris Time

China

E-mail: supportchina@spirentcom.com
Web: http://support.spirentcom.com.cn
Toll Free: +1-800-810-9529 (mainland China only)
Phone: +86 10 8233 0033 (rest of the world)
Fax: +86 10 8233 0022
Operating Hours: Monday through Friday, 09:00 to 18:00 Beijing Time

The latest versions of user manuals, application notes, and software and firmware updates are available on the Spirent Communications Customer Service Center websites at http://support.spirentcom.com and http://support.spirentcom.com.cn (China).

Information about Spirent Communications and its products and services can be found on the main company websites at www.spirentcom.com and www.spirentcom.com.cn (China).

Company Address

Spirent Communications, Inc.
26750 Agoura Road
Calabasas, CA 91302
USA

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Reserved Word List:

ACK_FORWARD
ACTIVE_FTP_MODE
ADDITIONAL_HEADER
ADDITIONAL_HEADER_FROMVAR
ALL
API
APPLY
APPLYKEY
APPLYVALUE
ARG
ASCII
ASCII_STRING

ASSIGN
ASSIGN_MATCH
AUTH
AUTH_PASSWORD
AUTH_REALM
AUTH_USERNAME
AUTHDOMAIN
BASIC
BCC
BINARY
BODY
BOTH
BT
CALLLENGTH_MAX
CALLLENGTH_MIN
CAPABILITY
CAPTUREFILE
CAPTURETIME
CC
CHECK
CHUNKSPERPACKET
CIFS
CITRIX
CLOSE
COLUMN_HEADING
COLUMN_NUM
COLUMN_NUM
COMMENT
CONNECT
CONTACTHOST
CONTENT_TYPE
COUNT
CREATE
CRETH
CRTCP
CRUDP
DATA
DDOS
DEFOPTS
DELETE
DELIVERY_REPORT
DESTMAC
DHCP
DHCPRLYS1
DHCPRLYS2
DISCOVER
DNS
DNS2
DOTX
DOTXEND
DURATION
EHLO

EMAIL_STRING
END
ESMTP
ESP
ETHSETTING
ETRN
EXCLUDE
EXP
EXPECT
EXPECTS
EXPN
EXPUNGE
F5
FASTRETRY
FETCH_BODY
FETCH_HEADERS
FILENAME
FIRST
FIXED
FLOAT
FORMAT
FORMS
FROM
FSTREE
FTP
GET
GET
GETFILE
GETIP
GETNEXT
GLOBAL
GLOBAL
GRE
GRP
GW
HEAD
HEADER
HELP
HOST
HTTP
HTTPS
HTTPVERSION
ICMP
IDENTITY
IGMP
IKE
IMAP
INCLUDE
INTEGER
IPSETTING
KEY
LABEL

LENGTH
LINGER
LIST
LIST_BEGIN
LIST_ELT
LIST_ELT
LIST_END
LOCALHOST
LOCALIP
LOCALUSER
LOGIN
LOGOUT
LOOP
MACADDR
MATCH
MATCHNOT
MAXCAPTURES
MAXFORWARDS
MCAST
MCMPEG2TS
MCRTP
MEDIARATE
MM4
MM4_ATTACH_FILE
MM4_BODY_FILE
MMS
MMSLIVE
MODE
MODE
MPLS
MSS
NACP
NACPEND
NEWLINE
NEXT
NMASK
NO
NOOP
NUMBER_FIELD
OPTIONS
PACFILE
PACKEY
PACOPAQUE
PASSWD
PASSWD_VAR
POLICYTRY
POP3
PORTKNOCK
POST
POST_BODY
POST_FILE
PPP

PROFILE
PROXY
PUT
RADIUS
RADIUS
RANDOM
READ_REPLY
RECURSIVE
REFERER
REGEXPIRATION
REGISTRAR
REGISTRARPORT
RELEASE
REMOTEHOST
REMOTEIP
REMOTEUSER
RENEW
REPEAT
REQUEST
REQUESTURI
RETRIES
RETRIEVE
RETRYCOUNT
RETRYTIME
ROW
RPORT
RSET
RTSP
SAML
SBOTTOM
SECRET
SEED
SELECT
SEND
SET_SUFFIX
SETCOOKIE
SIP
SIPHEADER
SIZE
SLEEP
SMTP
SMTP_ATTACH_FILE
SMTP_BODY_FILE
SMTP_RAW_MESSAGE
SOML
SRCPORT
SRCPORT
SSL
START
STATUS
STATUSUPDATE
sTheScheme

sTheScheme
STOP
STORE
STRING
SUBJECT
SYNCFILE
TCP
TCPSETTING
TELNET
TEST
TIME
TIMEOUT
TIMER
TLS
TO
TORRENT
TOS
TRANSPORT
TREE
TTL
TURN
UDP
UIDL
UNIFORM
URI_STRING
URLENC
USER
USER_VAR
VARIABLE
VENDOR
VIAHOST
VLANCFI
VLANPRIORITY
VLANTAG
VLANTPID
VRFY
WAVE
XXXX
YES
PASSWORD
COOKIE